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AUTHOR Maggi, Gayle J. B.
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ABSTRACT

Thirty-six lessons for introducing the metric system are outlined. Appropriate grade level is not specified. The metric lessons suggested include 13 lessons on length, 7 lessons on mass, 11 lessons on capacity, and 5 lessons on temperature. Each lesson includes a list of needed materials, a statement of the lesson purpose, and suggested activities. Worksheets are also provided. (MK)

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METRIC

SYSTEM

UNIT

SE 030 765

METRIC SYSTEM
UNIT

By

Gayle J. B. Maggi

developed for

Metric Education Project

Grant Number G 007902352

in

ABC Unified School District

Cerritos, CA.

MAY 1 6 1980

BO GAYLE J. B. MAGGI

CHECKLIST FOR METRIC SYSTEM UNIT

NAME _____

ADDRESS _____

_____

TEACHER _____ PERIOD _____ GRADE _____

PURPOSE: After completing the checksheet, you will be familiar with and able to use the important units of the metric system of measurement.

IMPORTANT NOTE: In studying this information be very very certain you never go past a word you do not fully understand. USE A DICTIONARY.

SECTION II: LENGTH

*1. Read LESSON L1 _____

2. Read LESSON L2 _____

*DEMO: With your demo kit show how to use a metre stick. _____

*PRACTICAL: Do the worksheet that goes with this lesson. _____

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3. Read LESSON L3

*PRACTICAL: Do the worksheet for this lesson.

4. Read LESSON L4

*PRACTICAL: Do the worksheet for this lesson.

5. Read LESSON L5

*PRACTICAL: Do the worksheet for this lesson.

6. Read LESSON L6

*PRACTICAL: Do the worksheet for this lesson.

*PRACTICAL: Make a graph from the results of the worksheet.

7. Read LESSON L7

*AFTER CLASS PRACTICAL: Do as homework the worksheet for this lesson.

8. Read LESSON L8

*PRACTICAL: Do the worksheet for for this lesson.

9. Read LESSON L9

*PRACTICAL: Do the worksheet for this lesson.

10. Read LESSON L10

*AFTER CLASS PRACTICAL: Do as homework the worksheet for this lesson.

11. Read LESSON L11

*AFTER CLASS PRACTICAL: Do as homework the worksheet for this lesson.

12. Read LESSON L12

*PRACTICAL: Do the worksheet for this lesson.

13. Read LESSON L13

FILMSTRIP: Watch the filmstrip, "Lengthy Tales."

*ESSAY: Write a short essay on how you will use the information in this section when the United States changes to the Metric System.

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SECTION III: MASS

1. Read LESSON M1 _____
2. Read LESSON M2 _____

   *PRACTICAL: Do the worksheet for this lesson. _____
3. Read LESSON M3 _____

   *PRACTICAL: Do the worksheet for this lesson. _____
4. Read LESSON M4 _____

   *PRACTICAL: Do the worksheet for this lesson. _____
5. Read LESSON M5 _____

   *PRACTICAL: Do the worksheet for this lesson. _____
6. Read LESSON M6 _____

   *PRACTICAL: Do the worksheet for this lesson. _____
7. Read LESSON M7 _____

   FILMSTRIP: Watch the filmstrip, "Mass Matters." _____

   *ESSAY: Write a short essay on how you will use the information in this section when the United States changes to the Metric System. _____

SECTION IV: CAPACITY

1. Read LESSON C1 _____
2. Read LESSON C2 _____

   *PRACTICAL: Do the worksheet for this lesson. _____
3. Read LESSON C3 _____

   *AFTER CLASS PRACTICAL: For homework do the worksheet for this lesson. _____
4. Read LESSON C4 _____

   *PRACTICAL: Do the activity for this lesson. _____
5. Read LESSON C5 _____

   *PRACTICAL: Do the worksheet for this lesson. _____

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6. Read LESSON C6

*PRACTICAL: Do the worksheet for this lesson.

7. Read LESSON C7

*AFTER CLASS PRACTICAL: As homework do the worksheet for this lesson.

8. Read LESSON C8

*PRACTICAL: Do the worksheet for this lesson.

9. Read LESSON C9

*AFTER CLASS PRACTICAL: As homework do the worksheet for this lesson.

10. Read LESSON C10

*PRACTICAL: Do the worksheet for this lesson.

11. Read LESSON C11

FILMSTRIP: Watch the filmstrip, "Capacity Counts."

*ESSAY: Write a short essay on how you will use the information in this section when the United States changes to the Metric System.

SECTION V: TEMPERATURE

1. Read LESSON T1
2. Read LESSON T2

*PRACTICAL: Do the worksheet for this lesson.

3. Read LESSON T3

*PRACTICAL: Do the worksheet for this lesson.

4. Read LESSON T4

*PRACTICAL: Do the worksheet for this lesson.

5. Read LESSON T5

*AFTER CLASS PRACTICAL: As homework do the worksheet for this lesson.

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6. Read LESSON T6 _____

*PRACTICAL: Do the worksheet for this lesson. _____

*PRACTICAL: Graph the results from the worksheet. _____

7. Read LESSON T7 _____

*AFTER CLASS PRACTICAL: As homework do the worksheet for this lesson. _____

FILMSTRIP: Watch the filmstrip, "Celsius Scenes." _____

*ESSAY: Write a short essay on how you will use the information in this section when the United States changes to the Metric System. _____

SECTION VI: CONCLUSION

*ESSAY: Write a short essay on how you will use the metric units (metre, litre, gram, etc.) when the United States changes to the Metric System. _____

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I attest that I have gone fully through all the material in the METRIC SYSTEM UNIT. I have looked up any words that I did not fully understand and have completed all readings and practicals.

Signature_____Date_____

Signature of Teacher_____Date_____

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Length

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Name_____

Grade_____Period____Room_____

Date_____Lesson L1_____

LENGTH

The Metric System is a very easy and well thought out system. It is based on the METRE which is the basic unit of length.

Originally, the metre was one-ten millionth the distance from the north pole to the equator, but now it has a more scientific definition. Ask the teacher if you are interested.

The metric system is easy because it is all based on ten. Keep this in mind when you do the lessons.

In this section we will be measuring all different lengths. We will measure such things as heights, body parts, width of the room, distances on maps, etc. The main units we will be using are the metre, centimetre, millimetre, decimetre, and kilometre.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L2

METRE

Materials Needed

metre stick
adding maching tape
worksheet

PURPOSE

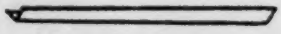
To get an understanding of a metre and use it to measure different items

ACTIVITY

1. In the metric system the basic unit of length is the METRE. Most doorknobs are 1 metre high. This is a frame of reference. Use that to help you estimate.
2. Instead of writing the word, metre, out each time there is a symbol for it. Do not put a period after it.

   metre = m

3. Take a metre stick and use it to measure 1 metre of adding maching tape. Cut it and fold in half lengthwise.



4. Write metre and the symbol for metre on the adding machine tape.
5. Use your metre to measure at least 5 things that are less than a metre, 5 things that are about 1 metre, and 5 things that are more than a metre. Write the names down on your worksheet in the correct column.

***NOTE: Be sure to start measuring with the left end of your metre stick. DO NOT start at the "1" on the metre stick.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L2

METRE (WORKSHEET)

	LESS THAN A METRE	ABOUT A METRE	MORE THAN A METRE
1			
2			
3			
4			
5			

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L3

TRUNDLE WHEEL

MATERIALS NEEDED

trundle wheel
worksheet

PURPOSE

To learn how to use a trundle wheel and measure distances with it

ACTIVITY

1. The trundle wheel is an instrument used to measure distances in metres. It has a handle attached to a wheel. Around the wheel are marked 100 centimetres making one metre. Every time the wheel rotates it clicks showing that you have gone one metre. Pull the wheel back to the point where it doesn't move so you can place the start arrow on the line.
2. Use the trundle wheel to measure ten metres (one dekametre) Start at the pole with the yellow tape, outside near the fence. Mark a line with chalk for 10 metres (1 dekametre).
3. Find how many paces (normal steps) you can make in 10 metres.
4. Use that number of paces to help you estimate the distances on the worksheet, in metres. Use the correct symbol.
5. Now use the trundle wheel to actually measure the distances in metres. Use the correct symbol.

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Name_____

Grade_____Period_____Room_____

Date_____LESSON L3

TRUNDLE WHEEL (WORKSHEET)

10 metres = _____paces

	DISTANCES	ESTIMATE	MEASURE
1	The distance from the back door to the front door of this classroom.		
2	The distance from the front door to room 2.		
3	The length of the hallway.		
4	The distance around the planter.		

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L4

MEASURING CENTIMETRES

MATERIALS NEEDED

metre sticks
MeasureMat
centimetre rules
worksheet

PURPOSE

To estimate and measure in centimetres using the frame of reference and centimetre rules.

ACTIVITY

1. The centimetre is one-hundreth (0.01) of a metre. Centi is a prefix that means one-hundreth (0.01). Notice it is 100 written backwards with a decimal point after the first 0. Anytime you see centi in front of a word it means one-hundreth (0.01). It takes 100 to make 1 whole.
2. It take 100 centimetres to make 1 metre. Get a metre stick and check the numbers.
3. Most people's little fingernail is about 1 centimetre across. USE that frame of reference to help you estimate.
4. Get a MeasureMat from the shelf and lay it out on the floor.
5. Estimate the length of each item listed before actually measuring. Use your frame of reference. Write down your estimate with the symbol for centimetre after the number. The symbol for centimetre comes from the first letter of the prefix and the first letter of metre. Therefore, the symbol for centimetre is cm without a period.
6. Using a centimetre rule, now measure each of the items listed on on your worksheet. Write down the measurement using the correct symbol after the number.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L4

MEASURING CENTIMETRES(WORKSHEET)

	ITEM	ESTIMATE	MEASURE
1	Length of Oar		
2	Paint Brush		
3	Hot dog		
4	Ketchup Bottle		
5	Mirror (tip of handle to top)		
6	Length of Seashell		
7	Length of green sunglasses		
8	Length of Red Truck		
9	Plastic Butterfly		
10	Length of Beach Towel		
11	Floats on Net		
12	Width of Fish on Net		
13	Width of Map		
14	Sandal (left foot)		
15	Red Tennis Shoe		
16	Bottom of Sailboat		
17	Length of Board under Oar		
18	Diameter of Green Ring		
19	Width of MeasureMat		
20	Length of Sailboat		

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L5

DRAWING CENTIMETRE LENGTHS

MATERIALS NEEDED

centimetre rules
unmarked piece of plastic
worksheet

PURPOSE

To estimate centimetre lengths by drawing line segments and using the frame of reference

ACTIVITY

1. Now that you have had some experience estimating and measuring with centimetres you should be able to draw lines of certain lengths.
2. With an unmarked piece of plastic, start at the dot after the number of centimetres on the next page, and draw a line segment of the given number of centimetres. Be sure to use your frame of reference for estimating.
3. Finish drawing all the line segments.
4. Using a centimetre rule measure the line segments drawn and record their length in the secondcolumn of the worksheet under "ACTUAL." Remember the symbol after the number.
5. How much shorter or longer did you draw the line segment than you were supposed to? Record in the third column.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L5_____

DRAWING CENTIMETRE LENGTHS (WORKSHEET)

Use an unmarked straight edge to draw the following line segments. Begin at the dot.

4 cm .

7 cm .

10 cm .

15 cm .

18 cm .

20 cm .

Now check your measurements with a centimetre rule. How close were you?

	ATTEMPT	ACTUAL	HOW MUCH SHORTER(-) OR LONGER (+)
1	4 cm		
2	7 cm		
3	10 cm		
4	15 cm		
5	18 cm		
6	20 cm		

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Name_____

Grade_____Period_____ Room_____

Date_____Lesson L6

FINDING YOUR HEIGHT

MATERIALS NEEDED

centimetre tapes
height measure
5 friends
worksheet

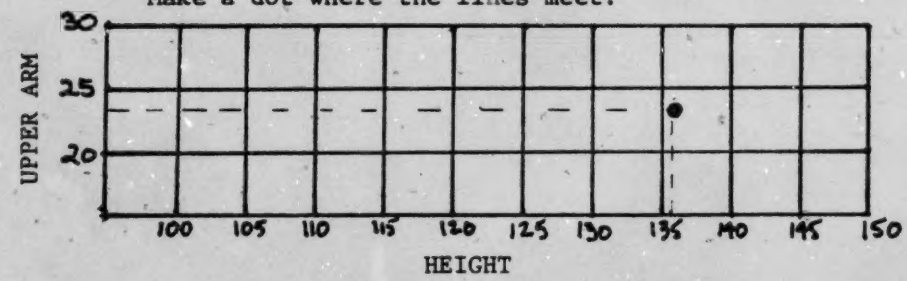
PURPOSE

To measure the upper arm length and height of a person to see if there is a relationship

ACTIVITY

1. Using a centimetre tape, measure the length of the upper arm(from your shoulder to the elbow) in centimetres. Now using the height measure find how tall you are in centimetres. Record your measurements on the worksheet, using the correct symbol for centimetre.
2. Now measure four (4) friends in the same manner. Record their measurements on the worksheet using the correct symbol.
3. On the graph paper, graph the measurements by making dots where arm length and the height meet.

   FOR EXAMPLE: Lets say a girl was 135 cm tall and her upper arm was 23 cm long. Find 23 cm on the UPPER ARM SIDE and draw an imaginary line across to the line of her HEIGHT. Make a dot where the lines meet.



4. Connect the dots to see if it makes a straight line.
5. If it does make a straight line, figure out the questions at the bottom of the worksheet.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L6

FINDING YOUR HEIGHT(WORKSHEET)

Measure the length of the upper arm (from shoulder to elbow) and the height of at least five (5) people. Record these measurements below and on the graph paper. (Place a dot at the point where the lengths cross)

	NAME	UPPER ARM	HEIGHT
1			
2			
3			
4			
5			
6			
7			

An upper arm bone of an ancient caveman was found. It was 38 cm long. How tall was the caveman? _____cm

The upper arm bone of a child was also found. It was 22 cm long. How tall was the child? _____ cm

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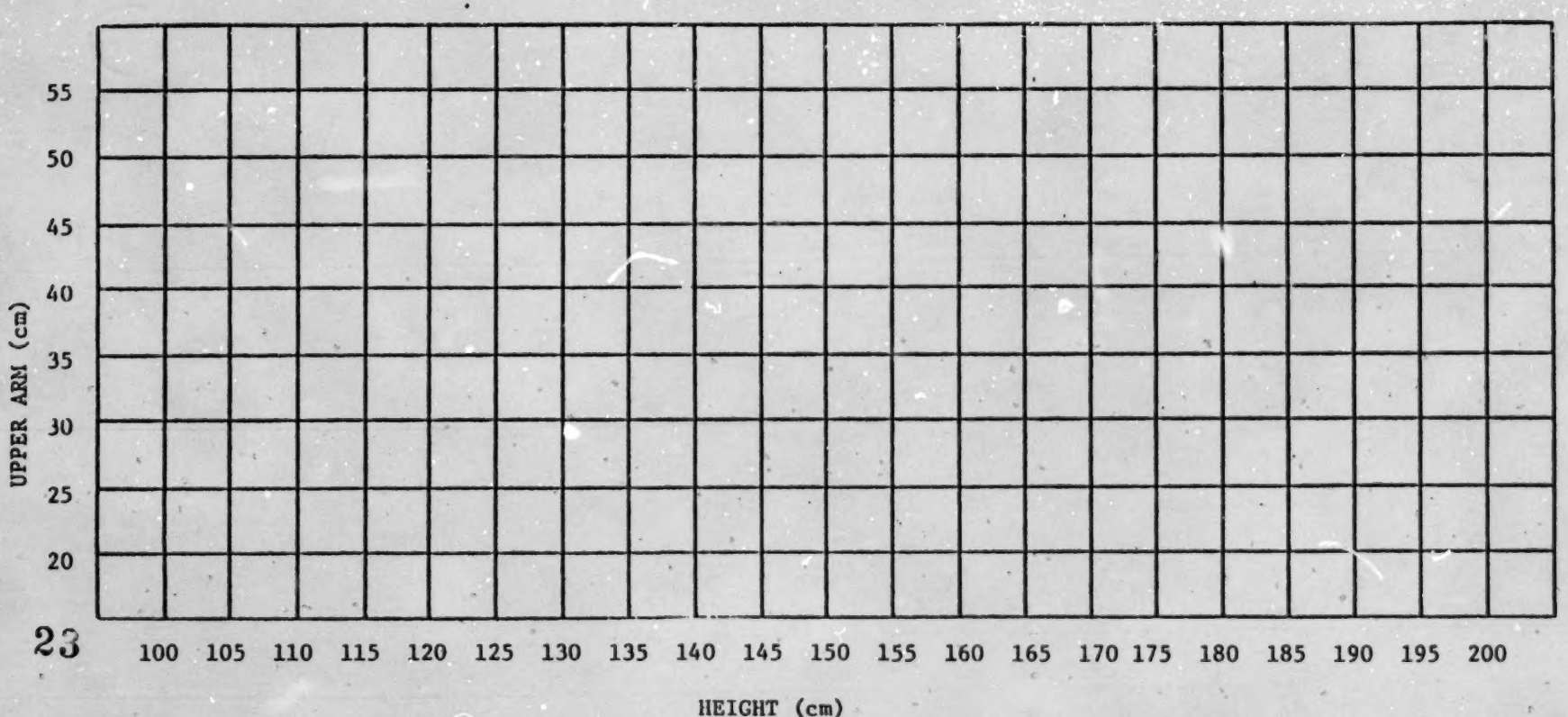
Name_____

Grade_____Period_____Room_____

Date_____Lesson L6

FINDING YOUR HEIGHT(WORKSHEET)



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Name_____

Grade_____Period_____Room_____

Date_____Lesson L7_____

LINE SEGMENTS-CENTIMETRES

MATERIALS NEEDED

worksheet

PURPOSE

Using centimetre rule to measure line segments

ACTIVITY

1. Cut out the centimetre rule at the bottom of the page and use it to measure the line segments on the page.
2. Record the measure of each on the line segment itself. Use the correct symbol after the measurement.

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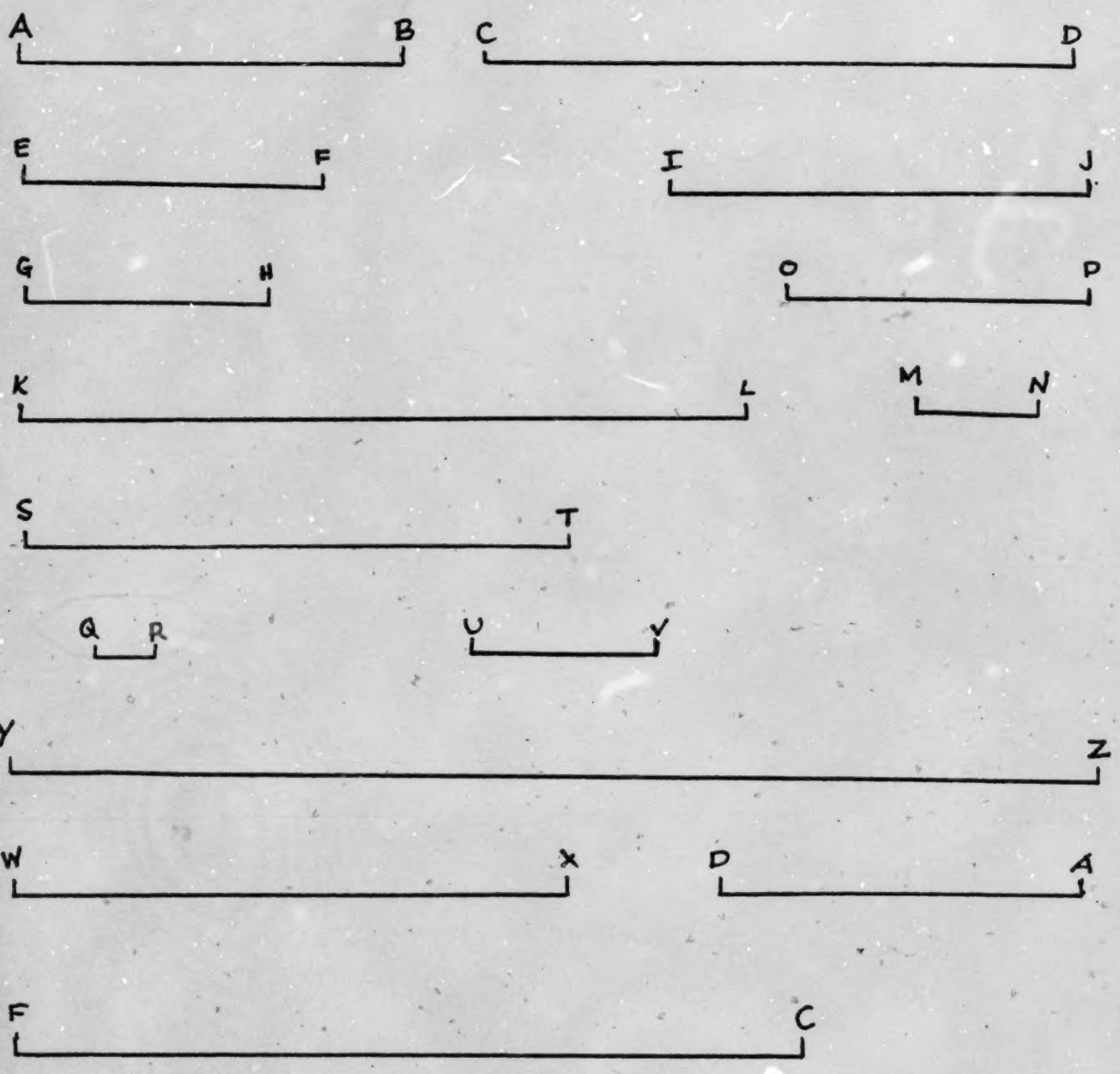
Name_____

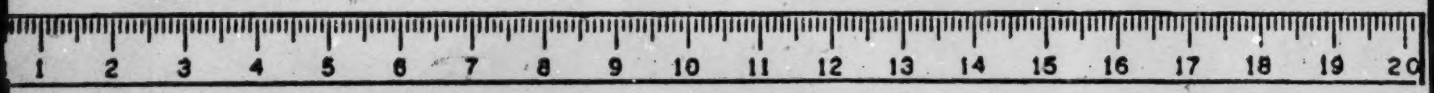
Grade_____Period_____Room_____

Date_____Lesson L7

LINE SEGMENTS-CENTIMETRES (WORKSHEET)

Measure each line segment to the nearest centimetre.





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Name_____

Grade_____Period____Room_____

Date_____Lesson L8

PERSONAL MEASUREMENTS

MATERIALS NEEDED

centimetre rules or
centimetre tapes or
metre stick or
height measure
worksheet

PURPOSE

Measuring body parts in centimetres to use as an aid in estimating distances.

ACTIVITY

1. Using a centimetre rule, a centimetre tape, a height measure, or a metre stick, measure the body parts listed on the worksheet.
2. Record to the nearest centimetre on the worksheet.
3. Use these measurements to help you estimate other lengths.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L8_____

PERSONAL MEASUREMENTS (WORKSHEET)

Sometimes you can use your own measurements to help you to estimate various distances. Make a chart of your measurements.

	BODY PART	LENGTH (cm)
1	Height	
2	Shoe Size	
3	Arm Length (shoulder to wrist)	
4	Span	
5	Cubit	
6	Pace	
7	Width of Finger (pinky)	
8		
9		
10		

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L9_____

MILLIMETRE MEASUREMENT

MATERIALS NEEDED

centimetre rule (millimetre side)
items listed on worksheet
worksheet

PURPOSE

Estimating and measuring items in millimetres

ACTIVITY

1. A millimetre is used for measuring very small things.
2. The millimetre is one-thousandth (0.001) of a metre. Milli is a prefix that means one-thousandth (0.001). Notice it is 1000 written backwards with a decimal point after the first 0. Anytime you see milli in front of a word it means one-thousandth (0.001). It takes 1000 to make 1 whole.
3. It takes 1000 millimetres to make 1 metre. Look on the metre stick to find the millimetre marks.
4. A dime is about 1 millimetre thick. This is a frame of reference.
5. Estimate the number of millimetres for each item listed on the worksheet. Record on the worksheet. Use the symbol for millimetre. The symbol for millimetre comes from the first letter of the prefix and the first letter of metre. Therefore, the symbol for millimetre is mm without a period.
6. Now using your centimetre rule, actually measure how many millimetres. Record on the worksheet, using the correct symbol.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L9

MILLIMETRE MEASUREMENT (WORKSHEET)

	ITEM	ESTIMATE	MEASURE
1	Small Postage Stamp		
2	Large Postage Stamp		
3	Box of Staples		
4	Scotch tape Package		
5	Small Paper Clip		
6	Large Paper Clip		
7	Coffee Stirrer		
8	Popsicle Stick		
9	Length of Ruler		
10	Straw		
11	Length of Toothpick		
12	Thickness of a Dime		

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L10

DECIMETRES AND EQUIVALENTS

MATERIALS NEEDED

centimetre rules
worksheet

PURPOSE

Measuring decimetres and changing to centimetres and millimetres

ACTIVITY

1. Now we can also learn about decimetres.
2. The decimetre is one-tenth (0.1) of a metre. Deci is a prefix that means one-tenth (0.1). Notice it is 10 written backwards with a decimal point after the first 0. Anytime you see deci in front of a word it means one-tenth (0.1). It takes 10 to make 1 whole.
3. It takes 10 decimetres to make 1 metre.
4. A brand new kindergarten crayon is one decimetre long. This is the frame of reference. Check to see if 10 crayons fit on a metre stick.
5. The symbol for decimetre comes from the first letter of the prefix and the first letter of metre. Therefore, the symbol for decimetre is dm without a period.
6. Now look at the centimetre rule. Find 1 decimetre. There are 10 centimetres in 1 decimetre. Use your little finger to check this.

   1 dm = 10 cm

   There are 10 millimetres in 1 centimetre. See if ten dimes fit on a centimetre.

   1 cm = 10 mm

   There are 100 millimetres in 1 decimetre.

   1 dm = 100 mm

   Therefore:

   1 dm = 10 cm = 100 mm

7. Measure the line segment AB on the worksheet and fill in the blanks.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L11

CENTIMETRES TO MILLIMETRES

MATERIALS NEEDED

centimetre rules
worksheet

PURPOSE

Measuring in centimetres and millimetres and changing centimetres to millimetres.

ACTIVITY

1. From the last activity you remember that 1 cm = 10 mm.
2. With that information, measure the line segments on the worksheet in centimetres and change to millimetres.

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Name _____

Grade _____ Period _____ Room _____

Date _____ Lesson L12

KILOMETRE DISTANCES

MATERIALS NEEDED

map of the United States
centimetre rules
worksheet

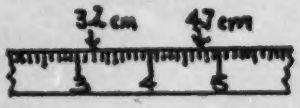
PURPOSE

Using a scale of kilometres to find distances between cities

ACTIVITY

1. Up until now we have been talking about lengths that are smaller or equal to 1 metre. Now we are going to talk about distances longer than 1 metre.
2. The kilometre is 1000 metres. Kilo is a prefix that means one thousand (1000). Anytime you see kilo in front of a word it means one thousand (1000).
3. It takes 1000 metre sticks to make 1 kilometre.
4. Kilometres are used to measure distances between cities.
5. You will need the map of the United States and a centimetre rule for this activity.
6. Measure the distances listed on the worksheet using the centimetre rule. Record your measurement to the nearest 0.1 of a centimetre.

   FOR EXAMPLE:

   3.2 cm or 4.7 cm
7. Using the scale at the bottom of the map find out how many kilometres are equal to 1 centimetre.
8. Now multiply that number by how many centimetres you measured and you will find how many kilometres the distance is. Use the correct symbol for kilometre. It comes from the first letter of the prefix and the first letter of metre. Therefore, the correct symbol for kilometre is km without a period.

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Name_____

Grade_____Period_____Room____

Date_____Lesson L12

KILOMETRE DISTANCES(WORKSHEET)

The distance from on city to another by air is not always the same as by road. Measure straight across from one city to another.

	FROM	TO	ON THE MAP	KILOMETRES
1	Los Angeles	Sacramento		
2	Los Angeles	San Diego		
3	Los Angeles	San Fransisco		
4	Los Angeles	Eureka		
5	Los Angeles	Boston		
6	New York	Washington D.C.		
7	Miami	Seattle		
8	Dallas			
9	Chicago			
10				

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Name_____

Grade_____Period_____Room_____

Date_____Lesson L12

KILOMETRE DISTANCES (MAP)

Name_____

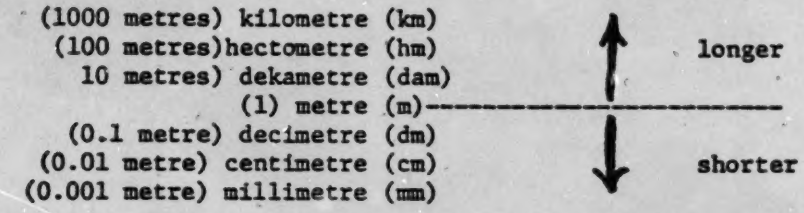
Grade_____Period_____Room_____

Date_____Lesson L13

LENGTH SUMMARY

You have now measured different lengths in this section, so you should remember some of the following prefixes.

The metre can be divided by 10 into shorter parts or it can be multiplied by 10 into longer parts.



Notice here how the metric system is based on ten (10). Let's start with the millimetre--the shortest unit. It takes:

10 millimetres = 1 centimetre
10 centimetres = 1 decimetre
10 decimetres = 1 metre
10 metres = 1 dekametre
10 dekametres = 1 hectometre
10 hectometres = 1 kilometre

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Mass

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Name_____

Grade_____Period_____Room_____

Date_____Lesson M1

MASS

In the Metric System the word mass is used instead of weight. Mass in the Metric System is measured in KILOGRAMS, which is the basic unit. Mass measures how heavy or light something is.

In this unit we will be measuring the mass (heaviness or lightness) of different items. We will be measuring bricks, a dictionary, a purse, fruits, vegetables, yourself, etc. The main units we will be using are the kilogram and gram.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson M2

KILOGRAM

MATERIALS NEEDED

items listed on worksheet
platform scale
kilogram mass
worksheet

PURPOSE

Compare the mass of familiar objects with one kilogram

ACTIVITY

1. In the metric system the basic unit of mass is the KILOGRAM. A kilogram is about 9 cubes of butter or an average-sized wooden baseball bat. This is a frame of reference. Use that to help you estimate in kilograms.
2. A kilogram is the heaviest unit of mass we will talk about. The kilogram is 1000 grams. Kilo is a prefix that means 1000. Anytime you see kilo in front of a word it means 1000.

   Therefore:

   1 kilogram = 1000 grams
3. Instead of writing the word, kilogram, out each time there is a symbol for it. The symbol for kilogram comes from the first letter of the prefix and the first letter of gram. Therefore, symbol for kilogram is kg without a period.
4. Collect the materials needed for the activity.
5. Pick up a kilogram mass to feel exactly how heavy it is.
6. You will be using the platform scale for this activity. Make sure it is on 0 when the tray is on. If it is not call the teacher.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson M2

KILOGRAM (con't)

7. Place the kilogram mass on the platform scale. Notice to which number it goes.
8. Now place each of the items on the scale separately.
9. Read the scale as to whether the item has a mass of less than a kilogram, about a kilogram, or more than a kilogram. On this scale it is 1 kilogram if the needle points to the 1.
10. Put an X in the correct box on the worksheet.

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Grade_____Period_____Room_____

Date_____Lesson M2

KILOGRAM (kg) (WORKSHEET)

	ITEM	LESS THAN ONE KILOGRAM	ABOUT ONE KILOGRAM	MORE THAN ONE KILOGRAM
1	Brick			
2	Book			
3	Small Bottle of Water			
4	Large Bottle of Water			
5	Pair of Shoes			
6	Dictionary			
7	Stapler			
8	Purse			
9				
10				

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Name_____

Grade_____ Period_____ Room_____

Date_____ Lesson M3

SUBTRACTING WITH KILOGRAMS

MATERIALS NEEDED

items listed on the worksheet
bathroom scale

PURPOSE

Find the mass of the items listed on the worksheet

ACTIVITY

1. Place the bathroom scale on a level surface.
2. Make sure to calibrate the scale so it falls on zero (0) before using the scale. Ask for help from teacher.
3. Get one of the items listed on the worksheet. The items may be used in any order. The order in which they are listed does not need to be followed.
4. With the item in your hands, step on the scale and read the mass from the scale. Then record this amount on your worksheet after the correct item under the column "Combined Mass".
5. Now, step on the scale without the item to find your mass. Record this amount on your worksheet under the column "My Mass".
6. To find the mass of the item itself, subtract the number of kilograms under "My Mass" from the number of kilograms under "Combined Mass". Record this amount on your worksheet under the column "Mass of Item".
7. Be sure to write the correct symbol for kilogram (kg) after every measurement.
8. Repeat these steps for each item listed on your worksheet.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson M3

SUBTRACTING WITH KILOGRAMS (WORKSHEET)

	ITEM	COMBINED MASS	MY MASS	MASS OF ITEM
1	Globe			
2	Dictionary			
3	Tape Recorder			
4	Purse			
5	Filmstrip Projector			
6	Chair			
7	Waste Basket			
8	Three (3) Bricks			
9				
10				

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Name_____

Grade_____Period_____Room_____

Date_____Lesson M4

KILOGRAMS AT THE MARKET

MATERIALS NEEDED

bags of fruit and vegetables (plastic)
platform scale
calculator

PURPOSE

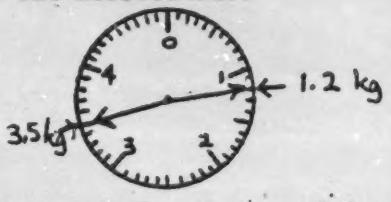
Measure the mass and find the cost of food items

ACTIVITY

1. Estimate the mass of each bag of food listed on your worksheet. Write your estimate in the column under "ESTIMATE OF MASS." Do this for each different item listed on the worksheet before going on to number 2. Write the symbol after your estimate.
2. Using a platform scale find the number of kilograms in each bag of fruit or vegetables. Write the actual measure in column under "MASS IN KILOGRAMS." Give each measurement ot the nearest tenth (0.1) of a kilogram. Write the symbol after the measurement.

   FOR EXAMPLE:

   3.5 kg or 1.2 kg



3. Multiply the number of kilograms for the mass of each bag of food, found under column "MASS IN KILOGRAMS," <u>times</u> the price per kilogram, found under column "$/kg." You can use the calculator.
4. The answer to the multiplication done in number 3, will be the "COST" of the bag of food. Write this amount in the column under "COST."

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Grade_____Period_____Room_____

Date_____Lesson M4

KILOGRAMS AT THE MARKET

(WORKSHEET)

	ITEMS	ESTIMATE OF MASS	MASS IN KILOGRAMS	$/kg	COST
1	Oranges			$1.00	
2	Apples			$1.10	
3	Bananas			$1.50	
4	Bell Peppers			$1.25	
5	Pineapple (only one)			$2.25	
6	Grapes			$1.80	
7	Mixed Nuts			$2.50	
8	Cherries			$2.00	
9					
10					

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Name_____

Grade_____Period____Room_____

Date_____Lesson M5

GRAM

MATERIALS NEEDED

items listed on worksheet
balance scale
gram masses

PURPOSE

Find the mass in gram. of light items

ACTIVITY

1. Now you are going to be measuring with GRAMS. Grams are very light--that is why it is NOT used as the basic unit. A gram is about equal to 1 standard paper clip or 1 candy corn. This is a frame of reference.
2. With this activity you will be using the balance scale. It has two pans, one yellow and one red.
3. Before using the scale make sure the black arrow stays on the middle line when there is nothing in the pans. If it is not in the middle, call the teacher.
4. To measure items, put the item to be measuredin one of the pans. In the other put the gram masses (1 gram = blue, 5 grams = red, 10 grams = yellow or white) until the arrow is in the middle again--it is then balanced.
5. First estimate how many grams each item is by using your frame of reference. Write the symbol for gram after each estimate. The symbol for gram is the first letter of the word. Therefore, the symbol for gram is g without a period.
6. Now measure each item listed to find the actual number of grams. Write the symbol for gram.
7. Don't worry if your estimates are off at first. If you are really estimating you should get better later on.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson M5_____

GRAM (WORKSHEET)

	ITEMS	ESTIMATE MEASUREMENT IN GRAMS	ACTUAL MEASUREMENT IN GRAMS
1	"C" Cell Battery		
2	Ping-Pong Ball		
3	Pencil		
4	Kindergarten Crayon		
5	"Pet" Rock		
6	Golf Ball		
7	Hair Brush		
8	Button		
9	Bar of Soap		
10			

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Name_____

Grade_____Period_____Room_____

Date_____Lesson M6

HONEST MASS

MATERIALS NEEDED

full cans listed on worksheet
empty cans with lids listed on worksheet
balance scale
gram masses

PURPOSE

To measure the mass in grams of different products to check for proper labeling

ACTIVITY

1. With this activity you are going to see if companies actually put the correct mass on their product.
2. Get the full pineapple can, the empty can with the lid, the balance scale, and the gram masses.
3. Put the full can in one pan of the scale, and the gram masses in the other one until the scale is balanced. Record the number of grams in the column "MASS OF FULL CAN." Use the correct symbol.
4. Now measure, in grams, the empty can with the lid, and record in the column "MASS OF EMPTY CAN." Use the correct symbol.
5. To find the mass of the contents of the can subtract the amount in the "MASS OF EMPTY CAN" column from the amount in the "MASS OF FULL CAN" column. Record this in the column "MASS OF CONTENTS." Use the correct symbol.
6. In the column "MASS ON CAN" write the number of grams written on the can itself.
7. Now see if the amount in the column "MASS OF CONTENTS" and

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Name_____

Grade_____Period_____Room_____

Date_____Lesson M6

HONEST MASS (con't)

"MASS ON CAN " are the same. If not, subtract to see if the mass on the can is over or under the mass of the contents. Record how much over or under it is. Use the correct symbol.

8. Continue this activity with the rest of the cans listed on your worksheet.

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Name_____

Grade_____Period_____Room_____

Date_____LESSON M6

HONEST MASS (WORKSHEET)

	PRODUCT	MASS OF FULL CAN	MASS OF EMPTY CAN	MASS OF CONTENTS	MASS ON CAN	SHORT(-) OR OVER(+)
1	Pineapple Can					
2	Refried Beans Can					
3	Coffee Can					
4	Soup Can					
5	Dog Food Can					
6						
7						
8						

Name_____

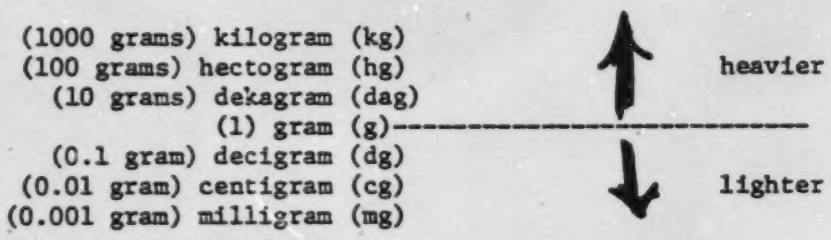
Grade_____Period____Room_____

Date_____Lesson M7

MASS SUMMARY

You have now measured different masses in this section so you should remember what a kilogram and gram is.

The gram can be divided by 10 into lighter parts or it can be multiplied by 10 into heavier parts.



Notice here how the metric system is based on ten. Let's start with the milligram--the lightest unit we will talk about. It takes:

10 milligrams = 1 centigram
10 centigrams = 1 decigram
10 decigrams = 1 gram
10 grams = 1 dekagram
10 dekagrams = 1 hectogram
10 hectograms = 1 kilogram

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Capacity

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C1

CAPACITY

In the Metric System capacity is measured in LITRES which is the basic unit. Capacity is how much something will hold.

In this unit we will be measuring the capacity of all different types of containers. We will be measuring sodapop bottles, juice cans, coffee cups, soup cans, buckets, milk cartons, etc. The main units we will be using are the litre and millilitre.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C2

LITRES

MATERIALS NEEDED

containers listed on worksheet
calibrated litre container
dishpan
pitcher

PURPOSE

To measure with a container calibrated in litres. Get an understanding for how much a litre is

ACTIVITY

1. In the Metric System the basic unit of capacity is the LITRE.

   A litre is a little more than a quart. This is a frame of reference. You may have seen some sodapop bottles in the store marked with litres. Use that amount to help you estimate.

2. Instead of writing the word, litre, out each time there is a symbol for it. The symbol for litre comes from the first letter of litre. Therefore, the symbol for litre is without a period. The symbol for litre is not printed. It is the cursive (ℓ) so no one will confuse it with the number (1).

3. With this activity we will be using a calibrated litre container. Find one on the shelf. Notice that it has marks on it with numbers beside the marks. Between these marks there is an equal amount of water. That is why it is called a calibrated container.

4. To measure with a calibrated container correctly there are three rules to follow:

   1. put the container on a level surface before measuring

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C2

LITRES (con't)

2. pour carefully so you don't spill
3. bend down so your eyes are at the same level as the water

5. By following these rules you can find the water level and read the capacity.
6. Collect the necessary containers listed on the worksheet.
7. You will be measuring the capacity of large containers. First fill the calibrated container with water to the litre line. Pour the water into the bucket. Keep filling and pouring until the bucket is filled to the top, counting the number of litres.
8. Record your measurement using the correct symbol.
9. Continue this way with the rest of the containers on the worksheet.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C2

LITRES (WORKSHEET)

MORE THAN A LITRE

	CONTAINERS	MEASUREMENT
1	1 bucket	
2	1 dishpan	
3	1 saucepan	
4	1 pitcher	
5	1 mixing bowl	
6	1 tuff-stuf tub	
7	1 plastic milk container	
8		
9		
10		

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Name_____

Grade_____ Period_____ Room_____

Date_____ Lesson C3

FINDING LITRE CONTAINERS

MATERIALS NEEDED

litre soda pop bottle
various containers

PURPOSE

comparing litre bottle to various containers at home

ACTIVITY

1. Find a litre sodapop bottle in a market or at home. Use it to measure with.
2. Find containers at home that you think are less than a litre, about a litre, and more than a litre.
3. Now actually measure them and list them in the correct column.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C3

FINDING LITRE CONTAINERS (worksheet)

	LESS THAN A LITRE	ABOUT A LITRE	MORE THAN A LITRE
1	Coffee cups	Sodapop bottle	wash bucket
2			
3			
4			
5			
6			

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C4

MAKING A CALIBRATED CONTAINER

MATERIALS NEEDED

50 millilitre container
plastic glass
waterproof marking pen
dishpan
pitcher

PURPOSE

Making a calibrated container for home use

ACTIVITY

1. The millilitre is one-thousandth (0.001) of a litre. Milli is a prefix that means one-thousandth (0.001). Notice it is 1000 written backwards with a decimal point after the first 0. Anytime you see milli in front of a word it means one-thousandth (0.001). It takes 1000 to make one whole.
2. It takes 1000 millilitres to make 1 litre.
3. A millilitre is about 20 drops of water from an eyedropper. This is a frame of reference.
4. The symbol for millilitre comes from the first letter of the prefix and the first letter of litre. Therefore, the symbol for millilitre is mℓ without the period.
5. Collect a container calibrated with a 50 mℓ marking, an empty plastic glass, and a waterproof marking pen.
6. Fill the calibrated container with water to the 50 mℓ mark.
7. Pour this water into the empty plastic glass. Mark the water level line with the pen and write 50 mℓ. Leave the water in the glass.
8. Fill the calibrated container with water to the 50 mℓ mark again and empty into the plastic glass.
9. Now mark the water level line and write 100 mℓ. (NOTE: 50 mℓ and 50 mℓ = 100 mℓ).
10. Continue this activity marking every 50 mℓ until the plastic glass is filled.

HINT: You should have 250 mℓ altogether.

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Grade_____Period_____Room_____

Date_____Lesson C4

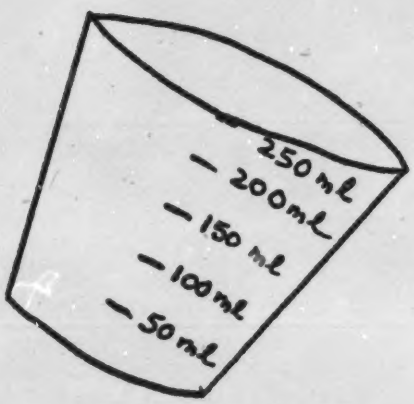
MAKING A CALIBRATED CONTAINER (worksheet)

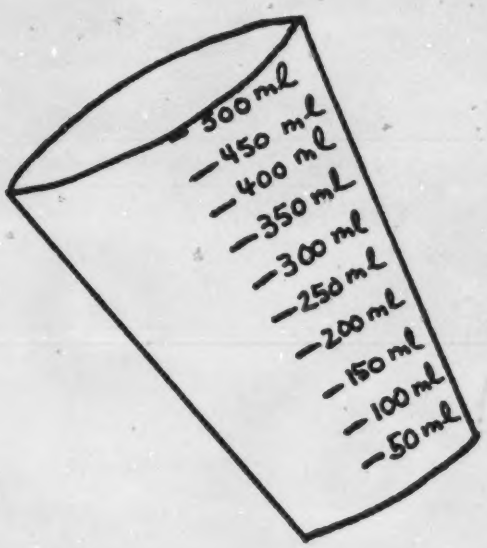
MAKING A CALIBRATED CONTAINER

You will need a container which is calibrated in graduations of 50 mℓ, an empty plastic glass and a waterproof marking pen.

Mark the glass every 50 mℓ with the marker. Go as high as you can.

When you are finished you will have a calibrated container of your own.





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Name_____

Grade_____Period_____Room_____

Date_____Lesson C5

DRIPPING WATER WASTES

MATERIALS NEEDED

graduated cylinders
dripping faucet
stopwatch
worksheet

PURPOSE

To determine how many millilitres and litres of water are wasted from a dripping faucet

ACTIVITY

1. A graduated cylinder is another instrument used for measuring millilitres and litres. The same rules follow as for the calibrated container. Find a graduated cylinder on the shelf.
2. You will need a graduated cylinder, which is calibrated in 1 mℓ markings, a stopwatch, and a dripping faucet.
3. Place the graduated cylinder under the dripping faucet. At the same time start the stop watch.
4. Let the water drip for 5 minutes and see how many millilitres are wasted. Write down the amount wasted using the symbol for millilitre.
5. Now figure out how many millilitres will be wasted in 30 minutes.

   FOR EXAMPLE: 1. Figure out how many 5 minute periods are in 30 minutes. Multiply that number by the amount wasted in 5 minutes.
   2. Then figure how many 30 minute periods are in an hour. Multiply that number by the water wasted in 30 minutes.

6. Continue figuring until you have finished the chart on the worksheet.

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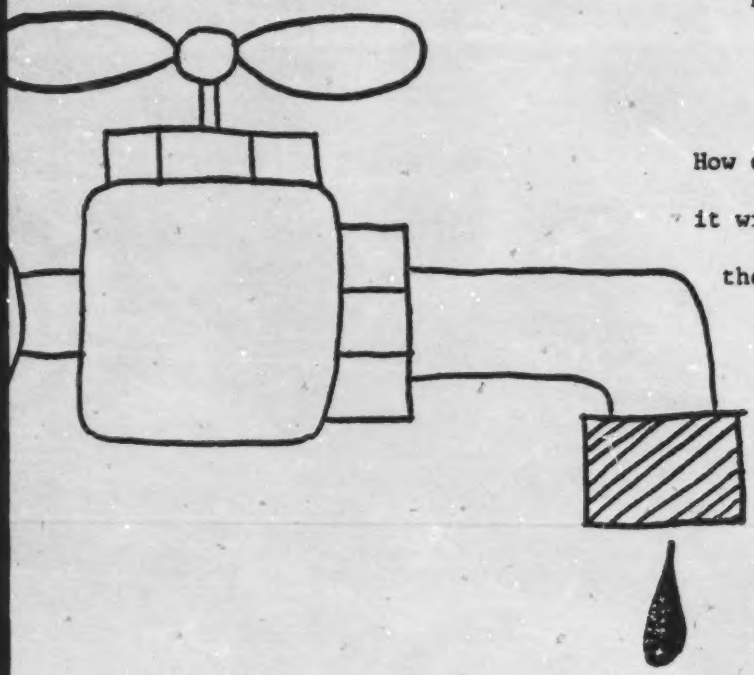
Name_____

Grade_____Period_____Room_____

Date_____Lesson C5

DRIPPING WATER WASTES (worksheet)



How can you figure out how much it will drip in an hour? Complete the following chart.

	LENGTH OF TIME	AMOUNT WASTED
1	5 minutes	
2	30 minutes	
3	1 hour	
4	1 day	
5	1 month	
6	1 year	

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C6

MILLILITRES

MATERIALS NEEDED

containers A through J
set of graduated cylinders
pitcher
dishpan
worksheet

PURPOSE

To estimate and measure different size containers in millilitres

ACTIVITY

1. Collect the necessary materials for this activity.
2. Estimate the capacity of container A. Record the estimate using the correct symbol.
3. Now use an appropriate-sized graduated cylinder to measure how many millilitres the container A actually holds. Record this.
4. You should now be able to estimate the capacity of the other containers more accurately. Record your estimates. Write the symbols.

   NOTE: Remember, I don't expect you to be able to estimate exactly at first. Hopefully you will improve as you get more practice at estimating.

5. Measure each container with an appropriately-sized graduated cylinder. Record the number of actual millilitres. Write the symbols.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C6

MILLILITRES (worksheet)

	CONTAINER	ESTIMATE	MEASURE
1	A		
2	B		
3	C		
4	D		
5	E		
6	F		
7	G		
8	H		
9	I		
10	J		

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Name_____

Grade_____ Period_____ Room_____

Date_____ Lesson C7

LITRES TO MILLILITRES

MATERIALAS NEEDED

worksheet

PURPOSE

to change litre amounts to millilitres

ACTIVITY

1. As we learned before 1 litre has 1000 millilitres.
2. On this page fill in the missing numerals according to the example.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C8

WITCH'S BREW

MATERIALS NEEDED

set of calibrated containers
hopital calibrated container
pitcher
dishpan
worksheet

PURPOSE

To pour carefully emptying and filling calibrated containers. To read containers accurately

ACTIVITY

1. The hospital calibrated container holds 2 litres. In hospitals it is used for sterilized water. You might try asking a hospital nearby if they would donate one so you could have it at home for measuring.
2. Pour the first amount (900 mℓ) of water into a calibrated container. Then pour it into the hospital container.
3. Pour the next amount (150 mℓ) of water into the calibrated container. Pour that into the hospital container.
4. Pour the next amount(350 mℓ) of water out of the hospital container into the calibrated container.
5. Continue the activity according to the worksheet.
6. As you complete each step, place a check mark (✓) in the box.
7. Find out how much Witch's Brew you have made in millilitres and litres.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C8

WITCH'S BREW (worksheet)

WITCH'S BREW

Using a calibrated container, add to or subtract from a large hospital container the following amounts of water. As you complete each step, place a check mark (✓) in the box.

	DIRECTIONS	+ or -	✓
1	Pour in 900 mℓ	900 mℓ	
2	Add 150 mℓ	+150 mℓ	
3	Pour out 350 mℓ	-350 mℓ	
4	Add 1000 mℓ	+1000 mℓ	
5	Pour out 450 mℓ	mℓ	
6	Pour out 50 mℓ	mℓ	
7	Add 800 mℓ	mℓ	
8	How much "Witch's Brew" have you made?	mℓ ℓ	

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C9

DIVISIONS OF A LITRE

MATERIALS NEEDED

worksheet

PURPOSE

To figure out equal division of the litre

ACTIVITY

1. For section 1, write the number of millilitres on the line as if they were calibrated containers.
2. For section 2, find out how many millilitres there are in a litre. Then find how many millilitres there would be in each container if you divided them evenly.
3. In section 3, fill in the number of millilitres or litres to make the statement correct.
4. Use the correct symbols.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C10

CAPACITY COUNTS

MATERIALS NEEDED

containers listed on worksheet
graduated cylinders
dishpan
pitcher
worksheet

PURPOSE

To compare the amount written on the can with the actual capacity of the can

ACTIVITY

1. With this activity you are going to see if companies actually put the correct capacity on their product.
2. Get the tomato juice can and fill it with water.
3. Pour the water into the graduated cylinder.
   NOTE: There might be more than a litre, so pour water up to the litre mark, empty it, then pour the rest of the water into the cylinder.
4. Record the number of millilitres or litres in the column, "CAPACITY MEASURED." Use the correct symbol.
5. Now read the can and see how many millilitres or litres is written on the can. Record this in the column "CAPACITY ON CONTAINER." Use the correct symbol.
6. If the amounts in the columns, "CAPACITY MEASURED" and "CAPACITY ON CONTAINER" are not the same, subtract them and see how much over or under it is. Record in the "OVER(+) OR UNDER (-)"column. Use the correct symbol.
7. If the amount is less than is written on the container, fill the graduated cylinder to the amount that is written on the can and put that water in the can. Is there much more room?
8. Continue like this with the rest of the containers.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson C10

CAPACITY COUNTS(WORKSHEET)

	CONTAINER	CAPACITY MEASURED	CAPACITY ON CONTAINER	OVER(+) OR UNDER(-)
1	Tomato Jucie Can			
2	Bleach Bottle			
3	Soda Pop Bottle			
4	Shampoo Bottle			
5	Soda Pop Can			
6				
7				
8				

Name_____

Grade_____Period_____Room_____

Date_____Lesson C11

CAPACITY SUMMARY

You have now measured different capacities in this section so you should know what a litre and millilitre are.

The litre can be divided by 10 into smaller parts or it can be multiplied by 10 into larger parts.

(1000 litres) kilolitre (kℓ)
(100 litres) hectolitre (hℓ) larger
(10 litres) dekalitre (daℓ)
(1) litre (ℓ)----------
(0.1 litre) decilitre (dℓ)
(0.01 litre) centilitre (cℓ) smaller
(0.001 litre) millilitre (mℓ)

Notice here how the metric system is based on ten. Let's start with the millilitre--the smallest unit we will talk about. It takes:

10 millilitres = 1 centilitre
10 centilitres = 1 decilitre
10 decilitres = 1 litre
10 litres = 1 dekalitre
10 dekalitres = 1 hectolitre
10 hectolitres = 1 kilolitre

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Temperature

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T1_____

TEMPERATURE

In the Metric System temperature is measured in degrees Celsius. Temperature is the measure of how hot or cold something is. Celsius is the only unit that we will talk about that uses a capital letter. It is capitalized because it is named after the scientist who discovered the scale, Andrew Celsius. The symbol for degrees Celsius ($^{\circ}C$) is also capitalized. It is the only symbol we will use that is capitalized. Remember no period after the C.

Some frames of reference that might help you estimate temperature in degrees Celsius are:

freezing point - 0°
boiling point - 100°
body temperature- 37°
room temperature- 23°

In this unit we will be measuring the temperature of such things as ice, boiling water, salt water, cooling water, etc. The main unit we will be using is degrees Celsius.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T2

CELSIUS - DEGREES OF TEMPERATURE

MATERIALS NEEDED

worksheet

PURPOSE

reading the thermometer correctly

ACTIVITY

1. The next worksheet gives you practice in reading the thermometer—the instrument used to take temperature.
2. Follow the directions carefully to help you with later activities.
3. Fill in the empty blanks.
4. Write in the numbers that should go on the thermometers.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T3

DEGREES CELSIUS -- USING THERMOMETERS

MATERIALS NEEDED

thermometer
ice
hot plate
saucepan
worksheet

PURPOSE

To find the temperature in degrees Celsius of familiar things.

ACTIVITY

1. From the cupboard get a thermometer, hot plate, and saucepan.
2. Fill the saucepan with water.
3. Plug in the hotplate, turn it on, and put the saucepan on the hot plate.
4. While the water is heating, measure other things on the worksheet.
5. Use the thermometer to read the temperature of the air in the classroom. Record the temperature, using the correct symbol.
6. Continue measuring the other temperatures on the worksheet.

   NOTE: Ice is in the buckets on the table.
7. For body temperature, leave the thermometer under your arm for five (5) minutes.
8. Use the correct symbol for degrees Celsius.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T3

DEGREES CELSIUS - USING THERMOMETER
(worksheet)

	THINGS TO MEASURE TEMPERATURE	TEMPERATURE IN DEGREES CELSIUS
1	Temperature of air inside the classroom	
2	Temperature of air outside	
3	Temperature of water from cold water faucet	
4	Temperature of ice	
5	Temperature of ice water	
6	Temperature of boiling water	
7	Temperature of your body-under the arm	

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T4

CELSIUS SALT WATER TEMPERATURE

MATERIALS NEEDED

thermometer
salt
50 millilitre measuring cup
ice
hot plate
saucepan
worksheet

PURPOSE

To find the effect salt has on boiling and freezing temperatures

ACTIVITY

1. Collect the materials needed for this activity.
2. Get water in the saucepan.
3. Plug in the hot plate, turn it on, and put the saucepan on the hot plate to heat the water.
4. When water is boiling, read the temperature and record it using the correct symbol.
5. Now pour in 50 millilitres of salt. Wait 3 minutes and record the temperature again.
6. Using a Celsius thermometer measure the temperature of ice without salt. Record the temperature, using the correct symbol.
7. Now pour 50 millilitres of salt into the ice. Record the temperature, using the correct symbol.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T4

CELSIUS - SALT WATER TEMPERATURE
(WORKSHEET)

	ACTIVITY	TEMPERATURE IN DEGREES CELSIUS
1	Temperature of boiling water - without salt	
2	Temperature of boiling water - with salt	
3	Temperature of ice - without salt	
4	Temperature of ice - with salt	

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T5

READING THE THERMOMETER

MATERIALS NEEDED

worksheet

PURPOSE

Additional practice in reading thermometer correctly

ACTIVITY

1. Follow directions on the worksheet to read the thermometer correctly
2. Record the correct temperature in the spaces provided.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T6

COOLING DEGREES OF BOILED WATER

MATERIALS NEED

hotplate
saucepan
stopwatch
uncovered can
aluminum covered can
newspaper covered can
thermometer
worksheet

PURPOSE

To find the effect different insulations have upon cooling boiled water

ACTIVITY

1. Pour boiling water into a can unwrapped (no insulation) and record the temperature as soon as the temperature stops rising. This will be the starting temperature - 0 minutes. Start the stopwatch at the moment you read this temperature.
2. Record the temperature every minute for the first ten minutes, using the correct symbol.
3. Repeat STEP 1 and STEP 2, using a can wrapped with aluminum foil.
4. Repeat STEP 1 and STEP 2, using a can wrapped with newpaper.
5. If you want, do more than one can at a time.
6. On the graph, make dots for the temperatures at the different minutes. For the uncovered can use a solid line (———) to connect the dots. For the aluminum covered can use a dashed line (– – – –) to connect the dots. For the newspaper covered can, use a dotted line (·····) to connect the dots.

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T6

CHART IN ^{o}C OF COOLING BOILED WATER
(WORKSHEET)

Chart for recording temperature (^{o}C) of cooling boiled water

MINUTES	UNCOVERED	ALUMINUM FOIL	NEWSPAPER
Starting Time — 0 Minutes			
1 Minute			
2 Minutes			
3 Minutes			
4 Minutes			
5 Minutes			
6 Minutes			
7 Minutes			
8 Minutes			
9 Minutes			
10 Minutes			

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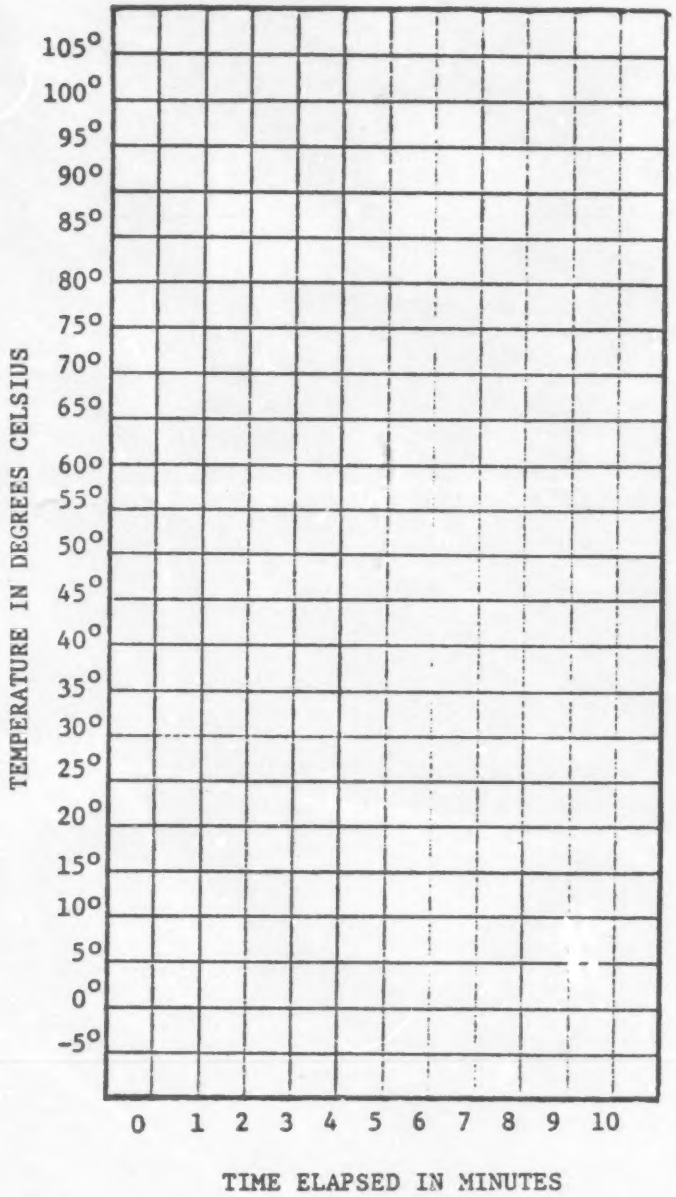
Name_____

Grade_____Period_____Room_____

Date_____Lesson T6

COOLING CURVE GRAPH OF BOILED WATER

GRAPH for recording temperatures (^{o}C) of cooling boiled water



LEGEND:

———Uncovered

-----Aluminum Foil

·····Newspaper

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Name_____

Grade_____Period_____Room_____

Date_____Lesson T7

CITY TEMPERATURES

MATERIALS NEEDED

worksheet

PURPOSE

To find average high, low and range temperatures for different cities

ACTIVITY

1. For this activity, choose five (5) cities from the temperature chart and write the names on your worksheet.
2. Now for each city record the high temperatures (top number) for 5 days. Use the correct symbol.
3. Record the low temperatures (bottom number) for 5 days. Use the correct symbol.
4. To find the range subtract the low temperature from the high temperature. Record the ranges, using the correct symbol.
5. To find the average high temperature for each city add up the high temperatures for the week and divide by the number of days. Record with the correct symbol.
6. To find the average low temperature for each city add up the low temperatures for the week and divide by the number of days. Record with the correct symbol.
7. To find the average range for each city add up the ranges for the week and divide by the number of days. Record with the correct symbol.
8. Now answer the questions on the bottom of the chart page.

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Name_____

Grade_____ Period_____ Room_____

Date_____ Lesson T7

CITY TEMPERATURES (CHART)

CITY NOV.	21	22	23	24	25
DAY	MON	TUE	WED	THUR	FRI
BISMARK	-16°C -23°C	-9°C -23°C	-12°C -16°C	-18°C -24°C	-17°C -29°C
BOSTON	13°C 2°C	11°C 7°C	8°C 6°C	12°C 8°C	10°C 4°C
CHICAGO	2°C -5°C	3°C -7°C	4°C -1°C	3°C 0°C	-1°C -9°C
CLEVELAND	10°C 1°C	4°C -2°C	11°C 3°C	6°C 3°C	7°C 1°C
FAIRBANKS	-14°C -19°C	-18°C -26°C	-21°C -26°C	-22°C -27°C	-19°C -24°C
HONOLULU	29°C 23°C	27°C 21°C	29°C 21°C	28°C 23°C	29°C 21°C
LONG BEACH	20°C 9°C	22°C 8°C	25°C 10°C	33°C 12°C	36°C 12°C
PITTSBURGH	14°C 7°C	5°C -1°C	12°C 4°C	6°C 4°C	8°C -1°C
SALT LAKE CITY	7°C -15°C	14°C 6°C	9°C 2°C	11°C 4°C	18°C 7°C
SAN FRANCISCO	14°C 8°C	17°C 11°C	16°C 11°C	18°C 11°C	19°C 12°C
SEATTLE	2°C -6°C	2°C -3°C	3°C -1°C	10°C 6°C	15°C 7°C

1. Which city had the highest temperature?_____
2. Which city had the lowest temperature?_____
3. Which city had the highest average high temperature for a week?_____
4. Which city had the lowest average low temperature for a week?_____
5. In which city would you have spent the week if you had a choice? Why?

_____

_____

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Name _____

Grade _____ Period _____ Room _____

Date _____ LESSON T7

CITY TEMPERATURES (WORKSHEET)

	CITY	DATE			DATE			DATE			DATE			DATE			AVERAGE		
		HIGH	LOW	RANGE	HIGH	LOW	RANGE	HIGH	LOW	RANGE	HIGH	LOW	RANGE	HIGH	LOW	RANGE	HIGH	LOW	RANGE
1																			
2																			
3																			
4																			
5																			